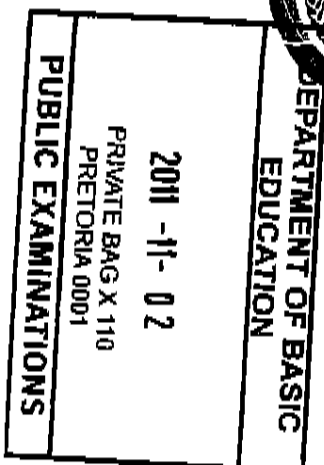




basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA



NATIONAL SENIOR CERTIFICATE

GRADE 12

MATHEMATICAL LITERACY P2

6 NOVEMBER 2011

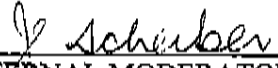
FINAL MEMORANDUM

MARKS: 150

This memorandum consists of 20 pages.

SYMBOL	EXPLANATION
A	Accuracy
CA	Consistent accuracy
C	Conversion
J	Justification (Reason/Opinion)
M	Method
MA	Method with accuracy
P	Penalty, e.g. for no units, incorrect rounding off, etc.
R	Rounding off
RT/RG	Reading from a table/Reading from a graph
S	Simplification
SF	Correct substitution in a formula
O	Own opinion/Example


EXTERNAL MODERATOR
MR R. I. SINGH
06 NOVEMBER 2011


INTERNAL MODERATOR
MRS J SCHEIBER
06 NOVEMBER 2011

UMALUSI
EXT. MODERATOR
R. I. SINGH

QUESTION 1 [30 MARKS]			
Ques	Solution	Explanation	AS
1.1.1	$\text{Salary} = R750 \times \text{number of days worked}$ <p style="text-align: center;">OR</p> $\text{Salary} = R750 \times n, \text{ where } n \text{ is the number of days worked}$ <p style="text-align: center;">OR</p> $\text{Salary} = R750n, \text{ where } n \text{ is the number of days worked}$	<p>1A R750 1A multiplying by number of working days</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>(Max 1 mark if NOT one term. No penalty if rand symbol left out)</p> </div>	12.2.1
1.1.2	<p style="text-align: center;">SALARY FOR POSITIONS</p>	<p>1CA (1; 3 500) plotted correctly</p> <p>1CA (2; 4 000) or any other correct point plotted correctly</p> <p>1CA (20; 13 000)</p> <p>1CA joining points</p> <p>1A correct label for either graph</p> <p>1CA (1; 750)</p> <p>1CA (20; 15 000)</p> <p>1CA joining points</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>Penalty 1 mark if Y-axis is joined</p> </div>	12.2.2
1.1.3(a)	12 days ✓✓RG	2 RG reading from graph plotted	12.2.3

UMALUSI
EXT. MODERATOR
R. I. SINGH

Ques	Solution	Explanation	AS
1.1.3(b)	<p>16 days ✓✓RG</p> <p style="text-align: center;">OR</p> <p>Salary (Meds) = R3 000 + R500 × 18 = R12 000 ✓M</p> <p>∴ R750 × number of days worked = R12 000</p> <p>Number of days = 16 ✓A</p>	<p>2RG reading from graph plotted</p> <p>1M calculating salary</p> <p>1A number of days (2)</p>	12.2.3
1.2.1	<p style="text-align: center;">✓A</p> <p>Total extra distance travelled = $20 \times 2 \times 40 \text{ km}$ ✓M</p> <p style="text-align: center;">= 1 600 km ✓A</p> <p>Extra petrol needed = $1\,600 \text{ km} \times 7,5 \text{ l} \div 100 \text{ km}$ ✓M</p> <p style="text-align: center;">= 120 l ✓CA</p> <p>Extra cost = petrol cost + maintenance cost</p> <p style="text-align: center;">= $120 \text{ l} \times R9,82 + 1\,600 \times R0,70$ ✓M ✓CA</p> <p style="text-align: center;">= R1 178,40 + R1 120,00</p> <p style="text-align: center;">= R2 298,40 ✓CA</p> <p style="text-align: center;">OR</p> <p>Extra cost per single trip</p> <p style="text-align: center;">= $40 \text{ km} \times 7,5 \text{ l} \div 100 \text{ km} \times R9,82/\text{l}$ ✓M ✓A</p> <p style="text-align: center;">= R29,46 ✓A</p> <p style="text-align: center;">✓A</p> <p>Extra maintenance cost per single trip = $40 \text{ km} \times R0,70/\text{km}$</p> <p style="text-align: center;">= R28,00 ✓A</p> <p>Total extra cost per single trip = R29,46 + R28,00</p> <p style="text-align: center;">= R57,46 ✓CA</p> <p style="text-align: center;">✓A</p> <p>Total extra cost for 2 trips = $2 \times 20 \times R57,46$</p> <p style="text-align: center;">= R2 298,40 ✓CA</p> <p style="text-align: center;">OR</p>	<p>1A number of days and trips</p> <p>1M extra distance/trip</p> <p>1A total distance</p> <p>Penalty 2 marks if one way distance calculated</p> <p>1M multiplying and dividing</p> <p>1CA extra petrol needed</p> <p>1M petrol cost</p> <p>1CA maintenance cost</p> <p>1CA simplification</p> <p>1M multiplying and dividing</p> <p>1A using petrol cost</p> <p>1A extra petrol cost</p> <p>1A using maintenance cost</p> <p>1A extra maintenance cost</p> <p>1CA cost per single trip</p> <p>1A number of days and trips</p> <p>1CA simplification</p>	12.2.1 12.1.1

Ques	Solution	Explanation	AS
	<p style="text-align: center;">OR</p> <p>Extra cost</p> $\begin{aligned} & \checkmark A \quad \checkmark M \quad \checkmark M \quad \checkmark A \quad \checkmark A \\ & = (20 \times 2 \times 40 \text{ km}) \times 7,5 \text{ } \ell + 100 \text{ km} \times R9,82 \\ & \quad \checkmark A \quad \quad \quad \checkmark A \\ & + (20 \times 2 \times 40 \text{ km}) \times R0,70 \\ & = R2\,298,40 \quad \checkmark CA \end{aligned}$	<p>1A number of days and trips 1M extra distance/trip 1M multiplying and dividing 1A petrol needed 1A petrol cost 1A distance maintenance cost 1A maintenance cost 1CA simplification</p> <p style="text-align: right;">Answer only full marks</p> <p style="text-align: right;">(8)</p>	
1.2.2	<p>He should accept the job at Meds SA. $\checkmark CA$</p> <p style="text-align: center;">$\checkmark CA$</p> <p>He will earn R2 000 more per month at ABC Cigs, but will have to pay R2 298,40 more per month for travel. $\checkmark \checkmark J$</p> <p style="text-align: center;">OR</p> <p style="text-align: center;">$\checkmark CA$ $\checkmark CA$ $\checkmark \checkmark J$</p> <p>He must choose Meds SA because he earns R298,40 more</p>	<p>1CA choice 1CA difference in salary 2J justification</p> <p style="text-align: right;">(4)</p>	12.4.4
1.2.3	<p style="text-align: center;">$\checkmark \checkmark J$</p> <p>The manager is generalizing results from a misleading graph.</p> <p style="text-align: center;">$\checkmark J$ $\checkmark J$</p> <p>The graph provides no time comparison and thus there is no annual decrease in the number of deaths due to cigarette smoking.</p> <p style="text-align: center;">OR</p> <p style="text-align: center;">$\checkmark \checkmark J$</p> <p>The manager is generalizing results from a misleading graph.</p> <p style="text-align: center;">$\checkmark J$</p> <p>The graph shows the percentage of deaths per type of disease arranged in a descending order and thus does not show a decrease in the number of annual deaths due to cigarette smoking. $\checkmark J$</p>	<p>2J justification</p> <p>2J justification</p> <p>2J justification</p> <p>2J justification</p> <p style="text-align: right;">(4)</p>	12.4.6

QUESTION 2 [23MARKS]			
Ques	Solution	Explanation	AS
2.1.1	$\text{Gail's rate} = \frac{R750}{3,75 \text{ hours}} = R200,00 \text{ per hour}$ $\text{TBOS' rate} = \frac{R400}{2,5 \text{ hours}} = R160 \text{ per hour}$ $\text{Dong's rate} = \frac{R700}{3,5 \text{ hours}} = R200 \text{ per hour}$ <p>\therefore Her statement is incorrect</p> <p style="text-align: center;">OR</p> $\text{Gail's cost for 3,75 hours} = R750,00$ $\text{TBOS' cost for 3,75 hours} = \frac{R400}{2,5 \text{ hours}} \times 3,75 \text{ hours} = R600,00$ $\text{Dongs cost for 3,5 hours} = R700,00$ <p>\therefore Her statement is incorrect</p>	<p>1RT reading from the table 1M finding the rate 1A Gail's rate</p> <p>1A TBOS' rate</p> <p>1A Dong's rate</p> <p>1CA conclusion (Accept a similar statement)</p> <p>1A Gail's rate 1M dividing 1A correct values</p> <p>1CA TBOS' rate</p> <p>1A Dong's rate</p> <p>1CA conclusion</p> <p>maximum 2 marks if only a correct conclusion is made without calculations</p>	12.1.1 12.1.3
			(6)

Ques	Solution	Explanation	AS
2.1.2	<p>Total excluding VAT $\times 114\% = R9\,497,93$</p> <p>Total excluding VAT = $\frac{R9\,497,93}{114\%}$ ✓M $= R\,8\,331,52$ ✓A</p> <p>Total cost of parts and labour from table $= R6\,599,53 + R1\,600,00$ $= R\,8\,199,53$ ✓A</p> <p>∴ Cost of Sundries and consumables $= R8\,331,52 - R8\,199,53$ ✓M $= R131,99$ ✓CA</p> <p style="text-align: center;">OR</p> <p>Total costs including VAT = R9 497,93</p> <p>Labour and Spares excluding VAT = R6 599,53 + R1 600,00 $= R8\,199,53$ ✓A</p> <p>Labour and Spares including VAT = R8 199,53 $\times 1,14$ ✓M $= R9\,347,46$ ✓A</p> <p>Sundries and Consumables including VAT $= R9\,497,93 - R9\,347,46$ $= R150,47$ ✓CA</p> <p>Sundries and Consumables excluding VAT = $\frac{R150,47}{114\%}$ ✓M $= R131,99$ ✓CA</p>	<p>1M division</p> <p>1A percentage including VAT</p> <p>1A total excl VAT</p> <p>1A total cost</p> <p>1M subtracting</p> <p>1CA simplification</p> <p>1A total cost</p> <p>1M including VAT</p> <p>1A amount including VAT</p> <p>1CA amount including VAT</p> <p>1M division by 114%</p> <p>1CA simplification</p>	<p>12.1.1</p> <p>(6)</p>

Ques	Solution	Explanation	AS
2.2.1	Graph Y ✓A We know this because Graph Y passes through the point (2,5 ; 400) OR (1; 160) ✓RG OR explanation in words	1A identifying correct graph 1RG any correct point used in explanation (2)	12.2.3
2.2.2	Graph X: for R640 time taken is 3,2 hours, ✓RG Graph Y: for R640 time taken is 4 hours ✓RG Difference in time = 4 hours – 3,2 hours ✓M = 0,8 hours ✓CA = 0,8 × 60 minutes = 48 minutes ✓C OR ✓M ✓C Difference in time = 4 × 60 minutes – 3,2 × 60 minutes = 240 minutes – 192 minutes = 48 minutes ✓CA	1RG reading correct time from the graph (Accept 3,15 to 3,25) 1RG reading correct time from the graph (Accept 3,95 to 4,05) 1M subtraction 1CA difference in hours (Accept 0,7 to 0,9) 1C converting to minutes (Accept 42 minutes to 54 minutes) OR 1M subtraction 1C converting to minutes 1CA difference in minutes (5)	12.2.3
2.3.1	Because TBO's will repair the tailgate. ✓J OR Because TBO's is not replacing it. ✓J OR Because TBO's will take longer ✓J	1J justification (1)	12.4.5
2.3.2	Gail's Panelbeaters ✓A Their final quotation is much lower. ✓J ✓J	1A choice 2J justification (3)	12.4.5

QUESTION 3 [27 MARKS]			
Ques	Solution	Explanation	AS
3.1.1 (a)	4,0 cm ✓✓A	2A measurement (Accept from 3,7 cm to 4,3 cm) Maximum 1 mark if answer in mm (2)	12.3.2 12.3.3
3.1.1(b)	<p>✓M 2 cm represent 300 km ✓A</p> <p>✓M ✓CA ✓CA ∴ 4,0 cm represent (300 + 300) km = 600 km</p> <p style="text-align: center;">OR</p> <p>2 cm represent 300 km ✓M 2 cm represent 30 000 000 cm ✓A ∴ the scale is 1: 15 000 000 ✓CA</p> <p>Actual distance = 4,0 cm × 15 000 000 = 60 000 000 cm ✓M = 600 km ✓C</p> <p style="text-align: center;">OR</p> <p>✓M ✓A 2 cm represents 300 km ✓CA</p> <p>4,0 cm represents $\frac{300 \text{ km} \times 4,0 \text{ cm}}{2 \text{ cm}}$ ✓CA = 600 km ✓CA</p> <p style="text-align: center;">OR</p>	<p>1M measuring 1A scale</p> <p>1M adding the correct scale values 1CA using correct values 1CA simplification</p> <p>1M measuring 1 A scale 1CA ratio</p> <p>1M multiplying 1C conversion</p> <p>1M measuring 1A scale 1CA multiplying 1CA dividing</p> <p>1CA solution (Accept 555 km to 645 km)</p> <p>If 1,8 cm = 300 km distance will be 666,67 km, then accept 616,67 km to 716,67 km</p>	12.3.2 12.3.3

Ques	Solution	Explanation	AS
3.1.1(b)	<p> $\checkmark M$ $0,8 \text{ cm}$ represent 100 km $\checkmark A$ </p> <p> There are 5 ($0,8 \text{ cm}$) in 4 cm $\checkmark M$ </p> <p style="text-align: right;">$\checkmark CA$</p> <p> $\therefore 4,0 \text{ cm}$ represent $(100 + 100 + 100 + 100 + 100) \text{ km}$ $= 500 \text{ km}$ $\checkmark CA$ </p> <p style="text-align: center;">OR</p> <p> $\checkmark M$ $0,8 \text{ cm}$ represent 100 km $\checkmark A$ $0,8 \text{ cm}$ represent $10\,000\,000 \text{ cm}$ \therefore the scale is $1 : 125\,000\,000$ $\checkmark CA$ </p> <p> Actual distance = $4,0 \text{ cm} \times 125\,000\,000$ $= 500\,000\,000 \text{ cm}$ $\checkmark M$ $= 500 \text{ km}$ $\checkmark C$ </p> <p style="text-align: center;">OR</p> <p> $\checkmark A$ $\checkmark M$ $0,8 \text{ cm} : 100 \text{ km} = 4 : x$ </p> <p style="text-align: right;">$\checkmark CA$</p> <p> $x = \frac{100 \text{ km} \times 4,0 \text{ cm}}{0,8 \text{ cm}}$ $\checkmark CA$ $= 500 \text{ km}$ $\checkmark CA$ </p>	<p> $1M$ measuring $1A$ scale </p> <p> $1M$ adding the correct scale values $1CA$ using correct values $1CA$ simplification </p> <p> $1M$ measuring $1A$ scale $1CA$ ratio </p> <p> $1M$ multiplying $1C$ conversion </p> <p> $1A$ scale $1M$ proportion $1CA$ multiplying $1CA$ dividing $1CA$ solution (Accept 462,5 km to 537,5 km) </p>	<p>12.3.2</p> <p>12.3.3</p> <p>(5)</p>

Ques	Solution	Explanation	AS
3.1.2	<p>600 km = 110 km/h × Time</p> $\text{Time} = \frac{600 \text{ km}}{110 \text{ km/h}} \quad \checkmark \text{M}$ $= 5,4545 \dots \text{ hours} \quad \checkmark \text{CA}$ $\approx 5,45 \text{ hours}$ <p>Arrival time is 13:42 $\checkmark \text{CA}$ They will arrive before 14:30 $\checkmark \text{CA}$</p> <p style="text-align: center;">OR</p> $\text{Time} = \frac{600 \text{ km}}{110 \text{ km/h}} \quad \checkmark \text{M}$ $= 5,4545 \dots \text{ hours} \quad \checkmark \text{CA}$ $\approx 5,45 \text{ hours}$ <p>From 08:15 to 14:30 = 6 h 15 min = 6,25 hours $\checkmark \text{CA}$</p> <p>They will arrive before 14:30 $\checkmark \text{CA}$</p> <p style="text-align: center;">OR</p> <p style="text-align: right;">$\checkmark \text{A}$</p> <p>Time from 08:15 to 14:30 = 6 h 15 min = 6,25 hours</p> $\begin{aligned} \text{Distance travelled} &= 110 \text{ km/h} \times \text{Time} \\ &= 110 \text{ km/h} \times 6,25 \text{ hours} \quad \checkmark \text{M} \\ &= 687,5 \text{ km} \quad \checkmark \text{CA} \end{aligned}$ <p>This distance is greater than the distance between Pietermaritzburg and Johannesburg. They will arrive before 14:30 $\checkmark \text{CA}$</p> <p style="text-align: center;">OR</p> <p style="text-align: right;">$\checkmark \text{A}$</p> <p>Time from 08:15 to 14:30 = 6 h 15 min = 6,25 hours</p> $\text{Required speed} = \frac{600 \text{ km}}{6,25 \text{ h}} = 96 \text{ km/h} \quad \checkmark \text{CA}$ <p style="text-align: center;">$\checkmark \text{CA}$</p> <p>He will arrive before 14:30 because he is travelling faster than the required speed.</p>	<p>1M division</p> <p>1CA time taken (Accept 4,95 to 5,86 and arrival time 13:18 to 14:07) 1CA arrival time 1CA reflection</p> <p>1M division</p> <p>1CA solution (Accept 4,95 to 5,86 and arrival time 13:18 to 14:07) 1CA calculating time 1CA reflection</p> <p>1A calculating time</p> <p>1M multiplying 1CA calculating distance</p> <p>1CA reflection</p> <p>1A calculating time</p> <p>1M dividing 1CA calculating speed</p> <p>1CA reflection</p>	12.2.1

(4)

Ques	Solution	Explanation	AS
3.1.3(a)	<p>Amount of fuel bought \times R10,12 per litre = R 455,40</p> <p>Amount of fuel bought = $\frac{R\ 455,40}{R10,12\ \text{per litre}}$ \checkmarkM \checkmarkA</p> <p>= 45 litres \checkmarkCA</p> <p>Fuel left in the tank = $60\ \ell - 45\ \ell$ \checkmarkM</p> <p>= $15\ \ell$ \checkmarkCA</p> <p>The gauge was NOT working correctly. \checkmarkCA</p> <p style="text-align: center;">OR</p> <p>Tank capacity = $60\ \ell$</p> <p>Half-filled tank = $30\ \ell$ \checkmarkM</p> <p>Cost to fill half-filled tank = $30\ \ell \times R10,12\ \text{per litre}$ \checkmarkA \checkmarkM \checkmarkA</p> <p>= R 303,60 \checkmarkCA</p> <p>The gauge was NOT working correctly. \checkmarkCA</p> <p style="text-align: center;">OR</p> <p>Full tank = $60\ \ell$</p> <p>Cost to fill a full tank = $60\ \ell \times R10,12\ \text{per litre}$ \checkmarkM</p> <p>= R 607,20 \checkmarkA</p> <p>Cost of fuel left in tank before filling = $R607,20 - R455,40$</p> <p>= $R151,80$ \checkmarkCA</p> <p>Petrol in tank before filling = $\frac{R151,80}{R10,12\ \text{per litre}}$ = $15\ \ell$ \checkmarkM \checkmarkCA</p> <p>The gauge was NOT working correctly. \checkmarkCA</p>	<p>1M division</p> <p>1A using correct values</p> <p>1CA petrol filled</p> <p>1M subtracting</p> <p>1CA petrol before filling</p> <p>1CA decision</p> <p>1M division</p> <p>1A using correct values</p> <p>1M multiplying</p> <p>1A petrol cost</p> <p>1CA simplification</p> <p>1CA decision</p> <p>1M multiplying</p> <p>1A correct value</p> <p>1CA subtraction</p> <p>1M division</p> <p>1CA simplification</p> <p>1CA decision</p>	<p>12.1.1</p> <p>12.3.2</p> <p>(6)</p>

Ques	Solution	Explanation	AS
3.1.3(b)	<p>They used 9 ℓ to cover 100 km</p> <p>1 ℓ to cover $\frac{100}{9}$ km</p> <p>45 ℓ to cover $\frac{100}{9} \times 45$ km ✓M</p> <p>= 500 km ✓CA</p> <p>Distance from Johannesburg = 600 km – 500 km</p> <p>= 100 km ✓CA</p> <p>OR</p> <p>Distance travelled × petrol consumption</p> <p>= number of litres used</p> <p>Distance travelled = $\frac{45 \ell}{9 \ell \text{ per } 100 \text{ km}}$ ✓M</p> <p>= 500 km ✓CA</p> <p>Distance from Johannesburg = 600 km – 500 km</p> <p>= 100 km ✓CA</p> <p>OR</p> <p>9 ℓ : 100 km = 45 ℓ : x</p> <p>$x = \frac{45 \ell \times 100 \text{ km}}{9 \ell}$ ✓M</p> <p>= 500 km ✓CA</p> <p>Distance from Johannesburg = 600 km – 500 km</p> <p>= 100 km ✓CA</p>	<p>1M dividing by the consumption rate</p> <p>1CA distance travelled</p> <p>1CA solution (Accept 55 km to 145 km)</p> <p>1M dividing by the consumption rate</p> <p>1CA distance travelled</p> <p>1CA simplification (Accept 55 km to 145 km)</p> <p>1M using proportion</p> <p>1CA distance travelled</p> <p>1CA simplification (Accept 55 km to 145 km)</p> <p>(3)</p>	12.3.2
3.2	<ul style="list-style-type: none"> take the N2 to Durban ✓A take the N3 to Harrismith ✓A take N5 to Bloemfontein ✓A take the N8 through Kimberley ✓A take the N10 until Upington ✓A 	<p>1A route and town</p> <p>1A route and town</p> <p>1A route and town</p> <p>1A route and town</p> <p>1A route and town</p> <p>Port Shepstone to East London to Upington N6 N8 N10 (max 4 marks)</p> <p>Port Shepstone to East London to Upington N10 (max 3 marks) (5)</p>	12.3.4
3.3	Rustenburg ✓✓A	2A destination (2)	12.3.4

QUESTION 4 [28 MARKS]			
Ques	Solution	Explanation	AS
4.1	South ✓A ✓A	2A direction South West full marks South East 1 mark (2)	12.3.4
4.2	$\begin{aligned} & \checkmark M \\ \text{Area of a window} &= 160 \text{ cm} \times 130 \text{ cm} \quad \text{OR} \quad 1,6 \text{ m} \times 1,3 \text{ m} \\ &= 20\,800 \text{ cm}^2 \\ &= 2,08 \text{ m}^2 \quad \checkmark C \end{aligned}$ $\begin{aligned} \text{Area of a door opening} &= 109\% \text{ of } 2,08 \text{ m}^2 \quad \checkmark M \\ &= 1,09 \times 2,08 \text{ m}^2 \\ &= 2,2672 \text{ m}^2 \quad \checkmark CA \end{aligned}$ $\begin{aligned} 2,14 \text{ m} \times \text{width} &= 2,2672 \text{ m}^2 \\ \text{width} &= \frac{2,2672 \text{ m}^2}{2,14 \text{ m}} \\ &= 1,0594... \\ &\approx 1,06 \text{ m} \quad \checkmark CA \end{aligned}$	1M multiplying 1C conversion 1M working with percentage 1CA area 1CA width of door opening in metres (5)	12.3.1 12.3.2

Ques	Solution	Explanation	AS
4.3.1	$\begin{aligned} \text{Area of N wall} &= 2,984 \text{ m} \times 2,4 \text{ m} \checkmark \text{SF} \\ &= 7,1616 \text{ m}^2 \checkmark \text{A} \end{aligned}$	1SF substitution 1A area of N wall	12.3.1 12.3.2
	$\begin{aligned} \text{Area of S wall} &= \text{area of N wall} - \text{area of window} \\ &= 7,1616 \text{ m}^2 - 2,08 \text{ m}^2 \checkmark \text{M} \\ &= 5,0816 \text{ m}^2 \checkmark \text{CA} \end{aligned}$	1M subtracting areas 1CA area of S wall	
	$\begin{aligned} \text{Area of W wall} &= 3,304 \times 2,4 \checkmark \text{SF} \\ &= 7,9296 \text{ m}^2 \checkmark \text{A} \end{aligned}$	1SF substitution 1A area of W wall	
	$\begin{aligned} \text{Area of E wall} &= \text{Area W wall} - \text{area of door} \\ &= 7,9296 \text{ m}^2 - 2,2672 \text{ m}^2 \checkmark \text{M} \\ &= 5,6624 \text{ m}^2 \checkmark \text{CA} \end{aligned}$	1M subtracting areas 1CA area of E wall	
	$\begin{aligned} \text{Total area} &= (7,1616 + 5,0816 + 7,9296 + 5,6624) \text{ m}^2 \checkmark \text{M} \\ &= 25,8352 \text{ m}^2 \\ &\approx 25,84 \text{ m}^2 \checkmark \text{CA} \end{aligned}$	1M adding all areas 1CA simplification	
	OR		
	$\begin{aligned} \text{Area of bedroom 2} &= 2(\text{area of W wall}) + 2(\text{area of S wall}) \\ &\quad - \text{area of window} - \text{area of door} \\ &\quad \checkmark \text{SF} \quad \checkmark \text{A} \quad \checkmark \text{M} \quad \checkmark \text{A} \quad \checkmark \text{M} \\ &= 2(3,304 \text{ m} \times 2,4 \text{ m}) + 2(2,984 \text{ m} \times 2,4 \text{ m}) - (2,08 \text{ m}^2) \\ &\quad - (2,2672 \text{ m}^2) \checkmark \text{M} \\ &\quad \checkmark \text{CA} \quad \checkmark \text{CA} \quad \checkmark \text{CA} \\ &= 15,8592 \text{ m}^2 + 14,3232 \text{ m}^2 - 4,3472 \text{ m}^2 \\ &= 25,8352 \text{ m}^2 \\ &\approx 25,84 \text{ m}^2 \checkmark \text{CA} \end{aligned}$	1SF substitution 1A area of N wall 1M multiplying by 2 1A area of W wall 1M subtraction 1M subtraction 3CA simplification 1CA final simplification	
			(10)

Ques	Solution	Explanation	AS
4.3.2	Total area to be painted in both bedrooms $= 25,84 \text{ m}^2 + 28,44 \text{ m}^2$ $= 54,28 \text{ m}^2 \checkmark \text{CA}$		12.1.1 12.1.2
	Amount of paint required = $\frac{54,28 \text{ m}^2 \checkmark \text{M}}{4 \text{ m}^2 / \ell}$ OR $\frac{54,28 \text{ m}^2}{20 \text{ m}^2 \text{ per tin}}$	1CA simplification 1M dividing	
	$= 13,57 \ell \checkmark \text{CA} = 2,714 \text{ tins}$	1CA simplification 1M dividing by 5 ℓ	
	Number of 5 ℓ containers = $\frac{13,57 \ell}{5 \ell} \checkmark \text{M}$ $= 2,714$ $\therefore 3 \text{ containers are needed.} \checkmark \text{R}$	1R rounding up	
	Cost = $\text{R}169,99 \times 3$ $= \text{R}509,97 \checkmark \text{CA}$	1CA cost	
	Mrs Wong's estimation was INCORRECT $\checkmark \text{O}$	1O correct conclusion	
	OR		
	4 m^2 is covered by 1 ℓ of paint 1 m^2 is covered by $\frac{1}{4} \ell$ of paint $\checkmark \text{M}$	1M dividing	
	Total area to be painted in both bedrooms $= 25,84 \text{ m}^2 + 28,44 \text{ m}^2$ $= 54,28 \text{ m}^2 \checkmark \text{CA}$	1CA simplification	
	$\therefore 54,28 \text{ m}^2$ is covered by $\frac{1}{4} \times 54,28 \ell$ of paint $= 13,57 \ell \checkmark \text{CA}$	1CA simplification	
	Number of 5 ℓ containers = $\frac{13,57 \ell}{5 \ell} \checkmark \text{M}$ $= 2,714$	1M dividing by 5 ℓ	
	$\therefore 3 \text{ containers are needed.} \checkmark \text{R}$	1R rounding up	
	Cost = $\text{R}169,99 \times 3$ $= \text{R}509,97 \checkmark \text{CA}$	1CA cost	
	Mrs Wong's estimation was INCORRECT $\checkmark \text{O}$	1O correct conclusion	(7)

Ques	Solution	Explanation	AS
4.4	<p>Total number of hours worked = $(6 + 6 \times 1\frac{1}{2})$ hours ✓M $= 15$ hours ✓A</p> <p>Total labour cost = $15 \times R35,90$ $= R538,50$ ✓CA</p> <p>∴ The invoice amount was incorrect. ✓O</p> <p style="text-align: center;">OR</p> <p>Total labour cost = $6 \times R35,90 + 6 \times 1\frac{1}{2} \times R35,90$ ✓M ✓A $= R538,50$ ✓CA</p> <p>∴ The invoice amount was incorrect. ✓O</p> <p style="text-align: center;">OR</p> <p>Rate on Saturdays = $R35,90 + \frac{1}{2} \times R35,90 = R53,85$</p> <p>Labour cost on Saturday = $6 \times R53,85 = R323,10$ ✓CA</p> <p>Labour cost on Friday = $6 \times R35,90 = R215,40$ ✓A</p> <p>Total payment = $R323,10 + R215,40 = R538,50$ ✓M</p> <p>∴ The invoice amount was incorrect. ✓O</p>	<p>1M finding total time 1A simplification 1CA total payment 1O correct conclusion</p> <p>1M finding total hour 1A simplification 1CA total payment 1O correct conclusion</p> <p>1CA Sunday 1A Friday 1M adding 1O correct conclusion</p> <p style="text-align: right;">(4)</p>	<p>12.1.3 12.2.1</p>

QUESTION 5 [42 MARKS]			
Ques	Solution	Explanation	AS
5.1.1	$P(\text{scoring more than } 90\%) = \frac{\text{number of scores more than } 90}{\text{total number of scores}}$ $= \frac{2}{14} \checkmark A \checkmark M$ $= \frac{1}{7} \checkmark CA \text{ OR } 0,14 \text{ OR } 14,29\%$	<p>1A number of scores more than 90) 1M probability 1CA simplifying (value must be less than 1)</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> Answer only full marks </div>	12.4.5
5.1.2 (a)	<p><u>Vuka Secondary</u></p> <p>49; 50; 54; 57; 67; 67; 67; 78; 78; 89; 90; 90; 95; 98 $\checkmark A$</p> $P(\text{Median}) = \frac{67\% + 78\%}{2} \checkmark M$ $= 72,5\% \checkmark CA$ $Q(\text{Mean}) = \frac{90 + 67 + 67 + 89 + 50 + 78 + 54 + 67 + 95 + 90 + 98 + 57 + 49 + 78}{14} \checkmark M$ $= \frac{1\ 029}{14} \% \checkmark A$ $= 73,5\% \checkmark CA$ <p><u>Bathini High</u></p> $R(\text{Range}) = 99\% - 59\% \checkmark M/A$ $= 40\% \checkmark A$	<p>1A Arranging</p> <p>1M concept of median</p> <p>1CA simplifying</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> Maximum 1 if data not arranged </div> <p>1M concept of mean</p> <p>1A correct sum 1CA simplifying</p> <p>1M/A concept 1A range</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> No penalty if percentage left out </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> Answer only full marks </div>	12.4.3

Ques	Solution	Explanation	AS															
5.1.2(b)	<table border="1"> <thead> <tr> <th></th> <th>Median</th> <th>Mode</th> <th>Mean</th> <th>Range</th> </tr> </thead> <tbody> <tr> <td>Bathini High</td> <td>72%</td> <td>67%</td> <td>76,4%</td> <td>40%</td> </tr> <tr> <td>Vuka Secondary</td> <td>72,5%</td> <td>67%</td> <td>73,5%</td> <td>49%</td> </tr> </tbody> </table> <p>Bathini High performed better ✓CA</p> <p>Bathini High has a greater mean ✓J OR Vuka Secondary has a smaller mean</p> <p>Bathini High a smaller range ✓J OR Vuka Secondary has a larger range</p>		Median	Mode	Mean	Range	Bathini High	72%	67%	76,4%	40%	Vuka Secondary	72,5%	67%	73,5%	49%	<p>1CA identifying school</p> <p>1J mean</p> <p>1J range</p> <p>(3)</p>	12.4.3
	Median	Mode	Mean	Range														
Bathini High	72%	67%	76,4%	40%														
Vuka Secondary	72,5%	67%	73,5%	49%														
5.1.3(a)	<p>The scores are 90%; 95% and 98% ✓A ✓A ✓A</p>	<p>1A for 90%</p> <p>1A for 95%</p> <p>1A for 98%</p> <p>Penalty for each extra value. No penalty for extra 90%</p> <p>(3)</p>	12.4.3															
5.1.3(b)	<p>25th percentile of Bathini High = 67% ✓A</p> <p>∴ 4 learners ✓CA</p>	<p>1A identifying score</p> <p>1CA number of learners</p> <p>Answer only full marks</p> <p>(2)</p>	12.4.3															

Ques	Solution	Explanation	AS
5.1.4(a)	$\begin{aligned} \text{Lindiwe's score} &= (18 \times 2) + (10 \times 1) + (10 \times 3) \text{ marks} \\ &= (36 + 10 + 30) \text{ marks} \\ &= 76 \text{ marks} \end{aligned}$ <p>\therefore The records were NOT correct</p> <p style="text-align: center;">OR</p> $\begin{aligned} \text{Lindiwe lost only } 2 \times 12 &= 24 \text{ marks} \\ \text{Lindiwe's score} &= (100 - 24) \text{ marks} \\ &= 76 \text{ marks} \end{aligned}$ <p>\therefore The records were NOT correct</p>	<p>3A correct values</p> <p>1CA simplification</p> <p>1J conclusion</p> <p>2A calculating</p> <p>1M subtraction</p> <p>1CA simplification</p> <p>1J conclusion</p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> <p>Maximum 2 marks for correct conclusion with no calculations</p> </div> <p style="text-align: right;">(5)</p>	12.1.1
5.1.4(b)	<p>OPTION 1</p> $\begin{aligned} 30 \text{ Multiple choice correct answers} &= 30 \times 2 \text{ marks} \\ &= 60 \text{ marks} \\ 10 \text{ short questions correct} &= 10 \times 3 = 30 \text{ marks} \\ 5 \text{ one-word answers correct} &= 5 \times 1 = 5 \text{ marks} \\ \text{Total marks} &= 60 + 30 + 5 = 95 \end{aligned}$ <p>OPTION 2</p> $\begin{aligned} 30 \text{ Multiple choice correct answers} &= 30 \times 2 \text{ marks} \\ &= 60 \text{ marks} \\ 9 \text{ short questions correct} &= 9 \times 3 = 27 \text{ marks} \\ 8 \text{ one-word answers correct} &= 8 \times 1 = 8 \text{ marks} \\ \text{Total marks} &= 60 + 27 + 8 = 95 \end{aligned}$	<p>1M multiplication</p> <p>1A simplification</p> <p>1A short questions</p> <p>1A one-word</p> <p>1A simplification</p> <p>Learners can reason that 5 marks are lost</p> <p>1M multiplication</p> <p>1A simplification</p> <p>1A short questions</p> <p>1A one-word</p> <p>1A simplification</p> <p>Learners can reason that 5 marks are lost</p> <p style="text-align: right;">(5)</p>	12.1.1 12.2.1